

REMARKS

The claims in the application are now 17-36.

Favorable reconsideration of the application as amended is respectfully requested.

As noted upon Interview Summary PTOL-413 mailed August 3, 2004 by the Patent and Trademark Office, the Office Action mailed April 28, 2004 is properly nonfinal. Additionally, the claim numbering set forth at the top of page 2 of the April 28, 2004 Office Action has been adopted herein. In any event, Claims 7-16 have been canceled without prejudice and replaced by Claims 17-36 herein.

More specifically, Claims 17-23 replace Claims 7-16 and eliminate the formal rejections under 35 U.S.C. 112, second paragraph, set forth on page 2 of the Office Action. Claims 24-36 find explicit support throughout the present application. Independent Claim 20 corresponds to Claim 11 which has been indicated allowable on page 4 of the Office Action. However, it is respectfully submitted all claims pending herein are patentable over the applied art, for the following reasons.

Claims 7-10 and 12 have been rejected under 35 U.S.C. 103 as obvious over JP 10-30986 or JP 5-320616 in view of JP 11-178904 (hereinafter referred to as JP '986, JP '616 and JP '904). In answer to the question raised on page 4 of the Office Action, JP '904, JP'986 and Jp'616 respectively correspond to References 1-3 addressed in the Preliminary Amendment filed in the above-identified application. Three English abstracts of these references are enclosed with present Amendment. It is respectfully submitted the combination of these three references still fails to render obvious the claimed invention.

As recited in independent Claim 17 present herein, the present invention is directed an indicator for plasma sterilization comprising an ink containing

- at least one type of colorless chromogenic fluoran pigment,
- a coloring assistant comprising at least one compound having a dithiocarbamyl group, and
- a binder for base material,

wherein the indicator is formed to undergo color tone change by hydrogen peroxide low temperature plasma sterilization.

As described in the present application, triphenylmethane pigment possesses improved stability over previously-used leucocrystal violet pigment, but when applied to base material, is hardly colored when subjected to hydrogen peroxide low temperature plasma sterilization (page 4). As a result of study described on page 5 of the present application only samples utilizing colorless fluoran pigment in combination with an assistant having a dithiocarbamyl (or alternatively mercapto) group, were found to be clearly colored by hydrogen peroxide low temperature plasma sterilization.

More particularly, as noted on page 17 of the present application, inks prepared according to Examples 1-3 of the present application (Figs. 8-10) colored well upon exposure to sterilization, whereas comparative examples 1-3 omitting the claimed coloring assistant did not change color at all. Inks prepared with another fluoran pigment according to Examples 4-6 (Figs. 11-13) also colored well upon exposure to sterilization, whereas comparative examples 4-6 omitting the claimed coloring assistant also failed to change color at all (page 18). This evidence is also backed up by the comparative testing between

Examples 7-12 (Figs. 14-19) and comparative examples 7-12 omitting the claimed coloring assistant, as described on pages 19-20 of the present application.

Successful performance of invention Examples 16-18 (Figs. 23-25) is also described on pages 22-23 of the present application, with excellent performance being attained with the compositions prepared according to Examples 19 and 20 (Figs. 26 and 27) as described on pages 23-24 of the present application. Comparative examples 16-20 which were identically prepared except by using a pigment other than the claimed fluoran pigment, performed poorly as compared to the claimed compositions (page 27 of the present application).

Accordingly, the comparative testing set forth in the present application clearly documents improvement indicating hydrogen peroxide plasma sterilization with the claimed combination of ingredients, as opposed to comparative compositions which all fail to contain the same combination of claimed ingredients. JP '986 just discloses a composition containing, among other ingredients, a pigment which can be triphenylmethane, fluoran, etc. but without the claimed dithiocarbamyl-containing coloring assistant. JP '616 also just discloses a composition containing a color-changing compound which can include a triphenylmethane or fluoran, but no disclosure of the claimed dithiocarbamyl-containing coloring assistant. Comparative examples 1-6 in the present application explicit document improvement of the claimed combination over such types of compositions omitting the claimed coloring assistant.


Furthermore, JP '904 discloses a composition that fails to include a fluoran-containing pigment as in the presently claimed invention. The ink in this reference

contains a trimethylmethane pigment which is clearly unsatisfactory for the reasons discussed above. As stated in the Preliminary Amendment, the indicator of this reference loses color upon sterilization, the exact opposite of the mechanism occurring with the fluoran-containing pigments according to the present invention. Furthermore, the specific combination of a non-fluoran pigment such as triphenylmethane pigment (Fig. 2) together with other ingredients including the claimed coloring assistant (Comparative Examples 16-20) have been documented inferior to the claimed compositions as described on pages 26-27 of the present application and noted above.

Accordingly, it is respectfully submitted the combination of the three-applied references, at most, could only be fashioned in light of the invention disclosure found in the present application, which constitutes improper hindsight reconstruction of the claimed invention.

Therefore, in view of the forgoing amendment, accompanying remarks, and explicit statements in the Office Action, it is respectfully submitted all claims pending herein are in condition for allowance. Please contact the undersigned attorney should there be any questions. A petition for an automatic one month extension of time for response under 37 C.F.R. 1.136(a) is enclosed in triplicate together with the requisite petition fee.

Respectfully submitted,


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